CLAIMS

1. An electronic device which comprises one or more functional elements consisting of a high molecular weight material which has a steric structure containing one or more three-dimensionally disposed modifying functional groups, said structure being known or predictable, in which

said high molecular weight material is a biopolymer, a synthetic polymer or a combination thereof, and

said modifying functional groups are selected from the group consisting of positive hole-transporting functional groups, electron-transporting functional groups and a combination thereof.

2. An electronic device as defined in claim 1, in which said biopolymer is DNA, RNA, a hybrid of DNA and RNA, proteins, saccharides or a composite thereof.

3. An electronic device as defined in claim 1, in which said synthetic polymer is peptide DNA, guanidine DNA or a composite thereof.

4. An electronic device as defined in claim 1, in which said positive hole-transporting functional group is TPAC, TPD, phenothiazine, TTF or fullerene.

5. An electronic device as defined in claim 1, in which said electron-transporting functional group is BND, PBD, anthraquinone, TCNQ or porphyrine.

6. An electronic device as defined in any one of claims 1 to 5, in which said functional element is an electrically conductive wire.

7. An electronic device as defined in any one of claims 1 to 5, in which said functional element is a circuit consisting of an electrically conductive wire.

8. An electronic device as defined in any one of claims 1 to 5, in which said functional element is a resistor consisting of an electrically conductive wire.

9. An electronic device as defined in any one of claims 1 to 5, in which said functional element is a

diode consisting of two or more electrically conductive wires.

10. An electronic device as defined in any one of claims 1 to 5, in which said functional element is a capacitor consisting of two or more electrically conductive wires.

11. An electronic device as defined in any one of claims 1 to 5, in which said functional element is a transistor consisting of two or more electrically conductive wires.

12. An electronic device as defined in any one of claims 1 to 5, in which said functional element is an electrically conductive wire produced upon periodically introducing said positive hole-transporting functional groups and/or said electron-transporting functional groups to said biopolymer and/or said synthetic polymer.

13. An electronic device as defined in claim 12, in which said electrically conductive wire is incorporated therein as a circuit of the device.

14. An electronic device as defined in claim 12, in which said electrically conductive wire is incorporated therein as a resistor, and the resistor has a specific resistance capable of being controlled by varying a density of said modifying functional groups.

15. An electronic device as defined in claim 12, in which said electrically conductive wire is incorporated therein as a diode, and the diode is in the form of a block polymer wherein two or more of said electrically conductive wires are connected in series.

16. An electronic device as defined in claim 15, in which said diode is a photodiode, and said photodiode has introduced in a conjunction portion thereof a functional group capable of controlling a discharge or introduction of electrons by its optical response.

17. An electronic device as defined in claim 15, in which said diode is a light-emitting diode, and said light-emitting diode has introduced in a conjunction

portion thereof a functional group capable of generating light emission by its electromotive force.

18. An electronic device as defined in claim 12, in which said electrically conductive wire is incorporated therein as a capacitor, and the capacitor is in the form of a block polymer wherein at least a part of the segments of said electrically conductive wire has an introduced insulating arrangement and said block polymer has a condition capable of being easily electrically charged in a neighborhood of the insulating arrangement.

19. An electronic device as defined in claim 12, in which said electrically conductive wire is incorporated therein as a bipolar transistor, and the bipolar transistor is in the form of a block polymer wherein three of said electrically conductive wires are alternately connected in series to form a PNP or NPN junction and said block polymer has said biopolymer and/or said synthetic polymer branched from a central segment thereof.

20. An electronic device as defined in claim 11, in which said transistor is a field effect transistor, and an electrical output of the field effect transistor can be controlled by applying a predetermined level of the electric field to said device from an outside of said device.